REMARKS

Reconsideration is requested.

Claims 53-92 and 96-104 are pending.

The Section 103 rejection of claims 53-92 and 96-104 over Tamime (1985, Yoghurt; Science and Technology - designated "R1" by the Examiner), Yamaguchi (EP 0 868 854 - designated "R2" by the Examiner) and Takahashi (EP 1 206 909 - designated "R3" by the Examiner), is traversed. Reconsideration and withdrawal of the rejection are requested in view of the following further distinguishing remarks.

The present invention provides a stabilizer for use in the preparation of fermented dairy products which is compatible with the fermentation step, which prevents phase separation during fermentation and which is capable of stabilizing acidified milk proteins after fermentation (see page 5, lines 28-32 of the specification). Surprisingly, and contrary to the general teachings of the art, the present applicant has discovered that depolymerised pectins are suitable stabilisers for this purpose.

Tamime (R1) discloses processes for the production of fermented milk including yogurt, yogurt beverage, stirred yogurt and the like. The process outlined on page 236 of R1 discloses the addition of sugar and/or stabilizers to milk, followed by homogenization, heat treatment and inoculation with a starter culture. Table 2.9 on page 26 of R1 lists a variety of different stabilizers permitted by FAO/WTO and the Food & Drugs Act, classified into natural gums, modified gums and synthetic gums. Low methoxy pectin is listed as one example (of many) of a modified gum.

Contrary to the Examiner's position, there is no specific disclosure in Tamime of a process for preparing a fermented dairy product which involves adding **low methoxy pectin** as a stabilizer **prior** to the fermentation step. Instead, the processes described in Tamime relate to stabilizers in general.

Moreover, the ordinarily skilled person familiar with the nature and technology of pectins would appreciate from their common general knowledge that pectins are incompatible with processes involving a fermentation step due to their ability to induce undesirable phase separation (see page 10, lines 19-22 of the present specification). Therefore, traditionally it has been necessary to add pectin stabilizers after fermentation in order to achieve the desired stabilization of the food product. This is explained in more detail below.

The ordinarily skilled person would understand that for directly acidified protein beverages, (e.g. where juice/acid is added to milk to form milk juice drinks), pectin is added to milk at neutral pH to deliberately induce phase separation, leading to a casein rich lower phase and a pectin-rich whey phase. The casein phase is then dispersed in the whey phase by mechanical stirring to keep the precipitated casein proteins in suspension. The direct addition of the acid freezes the casein protein in suspension, thereby preventing aggregation and precipitation. This was well established in the art at the priority date and is described in the introductory section of the present application (see page 3, line 13 to page 4, line 2 of the specification).

However, the ordinarily skilled person would understand that pectins cannot be used in the same way in the preparation of fermented dairy products. During

fermentation, the pH of the milk is reduced gradually and slowly, leading to a disintegration of the casein molecules that thickens or gels the milk into yogurt. The addition of pectins prior to fermentation induces phase separation, which in this case is undesirable as it adversely affects the characteristic yogurt structure. Moreover, mechanical stirring is typically avoided during fermentation in order to optimize conditions for the bacteria. Finally, in contrast to directly acidified beverages the pH drops too slowly during fermentation to freeze the casein structures and prevent aggregation.

The ordinarily skilled person would therefore appreciate that pectins are **ineffective** if added to milk **prior to fermentation**. Instead, the ordinarily skilled person will appreciate that pectins are typically added **after** fermentation to protect acidified proteins against aggregation. Again, this was well established in the art at the priority date of the present application and is described on page 4, lines 4-22 of the specification.

Thus, on reading Tamine and imparted with a common general knowledge of the field of pectins, the ordinarily skilled person would understand that:

(i) Low methoxy pectin is one example (of many) of a modified gum that may be used as a stabilizer during the manufacture of yogurt;

(ii) Stabilizers **in general** can be incorporated into yogurt prior to the fermentation step;

(iii) Pectin stabilizers (LE and HE), however, are incompatible with the fermentation step in view of their ability to cause undesirable phase separation. Pectin stabilizers must therefore be added **after** fermentation.

Accordingly, the applicants believe that the Examiner is reading too much into Tamime and that the Examiner's position fails to take into consideration the common general knowledge of the ordinarily skilled person working in the field of pectins at the time of the present invention. Instead, the applicant submits that the ordinarily skilled person, based on their common general knowledge and the available literature, would not have considered adding pectin as a stabilizer **prior** to the fermentation step with any reasonable expectation of success.

Moreover, the ordinarily skilled person would not have considered using a modified pectin such as the depolymerised pectin of R3 as this would have involved an even greater inventive leap.

R3 discloses acidic protein foods containing "low molecularized" pectin and processes for the production of such acidic protein foods (page 2, lines 48 to 56). The low molecularized pectin may be obtained by any known chemical or physical treatment capable of lowering the degree of polymerization of the pectin (see page 3, lines 1 to 2). The examples of R3 disclose the addition of low molecularized pectin to a milk containing composition (see, for example, Tables 1 and 4). However, R3 does not disclose a process in which depolymerized pectin is added as a stabilizer to a food material comprising a milk protein **prior** to fermentation. While lactic acid bacterial beverages and fermented milk are given as examples of the acidic protein foods of R3

(page 4, lines 10 to 11), no examples are provided which teach the fermentation step. In contrast, the examples merely teach the addition of low molecularized pectin to milk.

On reading R3, the ordinarily skilled person would have understood that the low molecularized pectin is simply added to the final food product, rather than being incorporated at an earlier stage during its manufacture. Where the acidic protein food is a lactic acid bacterial beverage or fermented milk, the ordinarily skilled person would have understood that the low molecularized pectin is added **after** the fermentation step; there is no teaching or suggestion that it could be added before fermentation.

Accordingly, on reading R3 (either alone or in combination with R1), the ordinarily skilled person would not have found any motivation to have added the depolymerised pectin stabilizer disclosed therein to a dairy product **prior** to the fermentation step. If anything, the ordinarily skilled person would have expected the depolymerised pectin stabilizer of R3 to behave in a similar manner to full length pectins, i.e. to be incompatible with the fermentation step due to undesirable phase separation.

The ordinarily skilled person would have had no reasonable expectation that the depolymerised pectin of R3 would in fact have the opposite effect, i.e. that it would have a stabilizing effect and could be added prior to fermentation without giving rise to phase separation. There is nothing in R3 to suggest that depolymerised pectins would overcome the technical prejudice in the art that pectins are incompatible with fermentation.

In light of the above, the applicant submits that the claimed invention would not have been obvious in view of R1, even when read in combination with R3.

The further teachings of R2 fail to cure the deficiencies of R1 and R3.

R2 discloses a low molecular weight pectin that has a high solubility and a low viscosity (page 2, lines 25 to 27). R2 discloses that food/drinks containing such low molecular pectins exhibit improved physical properties and an improved palate compared to products containing conventional pectins (page 5, lines 2 to 4). However, there is no teaching or suggestion in R2 that would have motivated the ordinarily skilled person to have incorporated the low molecular weight pectin disclosed therein as a stabilizer in **fermented dairy products**. Instead, the teachings of R2 are limited to using the low molecular weight pectin in other food products such as apple juice, hard candy or bread.

The ordinarily skilled person would therefore not have looked to R2 for further guidance as it is not concerned with the same technical problem as the claimed invention. There is nothing in R2 to have suggested that depolymerised pectins would overcome the technical prejudice in the art that pectins are incompatible with fermentation.

In view of the above comments, the applicant submits that the presently claimed subject matter would not have been obvious in view of R1, alone, or in combination with R2 and/or R3.

Reconsideration and withdrawal of the Section 103 rejection are requested.

The claims are submitted to be in condition for allowance and a Notice to that effect is requested. The Examiner is requested to contact the undersigned, preferably by telephone, in the event anything further is required.

Respectfully submitted,

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